



ATTACHMENT B1

Marked-Up Version of Amended Specification (as of 11/21/2002)

IN THE TITLE:

System and Methods for Disseminating Real Time Information Contact Server.

IN THE SPECIFICATION:

[0002] The present invention ~~generally relates to a method for real time dissemination of information~~ data processing in general; and, in particular, financial information to a system and methods for disseminating information. ~~Still more particularly, the present invention relates to a method for delivering real time stock quotes.~~

[0003] 2. Description of the Prior Related Art

[0004] It has long been recognized that accesses to timely information regarding current conditions in ~~the~~ various commodities and financial markets are ~~is~~ essential to ~~successful and~~ profitable trading and investment. Many complex investment strategies require precise and careful timing of specific transactions in response to fluctuating market conditions. This is particularly true in today's fast-moving markets where the ability to respond quickly to changing market conditions may mean the difference between substantial profits or devastating losses. Many investors rely heavily on real-time stock quotes when implementing their investment strategies; ~~and most of those~~ These investors get their real-time stock quotes from a brokerage company. Thus, ~~A~~ a successful brokerage company must be able to provide ~~up the second~~ stock quotes as accurately and efficiently as possible.

[0005] ~~Currently~~ Stock quotes are obtained when currently provided by stock exchanges, such as New York Stock Exchange, NASDAQ, the New York Stock Exchange and all other exchanges send various stock quotes to etc., to a field vender such as SNP, Bloomberg or Comstock. The field vender collects the data from all the sources, parses the data, and multiplexes it to a quote server application. After parsing the stock quote information received from the stock exchanges, the field vender then sends the stock quote information to a quote server application at a rate of about 1,000 to 2,000 packets per second. The quote server is typically located in at a regional brokerage office such as TradeCast or Merrill Lynch. The quote server has its own a database and keeps track of the history of each specific stock quote. If the stock quote is not in the database, the quote server adds the stock quote to the database. If the stock quote is already in the database, then the quote server updates the database. Next, the quote server checks to see if a registered user has requested that particular stock quote. Most brokerage houses companies use

a subscription based system. If one workstation or trader registers a particular stock quote, then every time the tick or quote comes in, the trader gets an update on that stock quote. If numerous customers are ~~looking requesting for a stock quotes at the same time~~, then ~~the it quote server will~~ takes some time to send the ~~stock quote requested~~ stock quotes to all the requesting customers. ~~If this process takes too long, the system can miss some of the stock quotes from the field vender.~~ If the quote server spends more time delivering stock quotes, however, then the quote server must spend less time getting stock quotes. Thus, when the above-mentioned response time to the requesting customers takes too long, the quote server may miss some of the stock quotes sent by the field vender. As a result, investors may not have the most current stock quote information needed to make intelligent trading decisions.

[0006] ~~Currently, the system is a closed loop. If the system spends more time delivering stock quotes, then the system must spend less time getting stock quotes. This can cause the system to miss stock quotes and not have current data. When the quote is not current, investors do not have the reliable information needed to make split second decisions.~~

[0007] ~~One solution is to make a cache to hold the data. However, a cache finite and if you make the cache to big then the customers are not going to get the latest quote or update. The goal is to optimize the processing.~~

[0008] ~~Also, when new customers are added to the system, new quote servers must also be added. Currently, when 60-100 new customers are added, a new quote server must be added to ensure the system does not spend too much time delivering quotes and not enough time receiving quotes.~~

[0009] ~~As a result there is a need for a way to optimize the system and make it quicker, more cost effective, and scalable.~~ Consequently, it would be desirable to provide an improved method to disseminate the information (deliver stock quote) to investors in real-time.

[0010] ~~It is therefore one object of the present invention to provide a method for improved precision and reliability for real-time dissemination of information.~~

[0011] ~~It is another object of the present invention to provide a method that can easily handle a large increase of users without having to substantially increase the number of servers.~~

[0012] ~~It is yet another object of the present invention to provide a more cost effective method for delivering stock quotes to individual traders.~~

[0013] ~~The foregoing objects are achieved as is now described.~~

[0014] ~~According to one embodiment of the invention, a method for real time dissemination of information using a quote server to database and send requested information to a contact server and then using the contact server to send the requested information to users instead of one server receiving, data basing, and disseminating the information. By having to send the requested information only once, the quote server is able to spend more time receiving and data basing the information and less time distributing the information. This enables the system to serve 1,000-2,000 people per combination of the quote and contact server whereas the quote server alone can only serve approximately 60-100 people. The increase in capacity produced by the combination drastically reduces the number of machines needed and people required to operate and maintain the machines. Also, the increase in capacity allows for a large increase in users without having to increase the number of servers substantially.~~ In accordance with an embodiment of the present invention, quote information from a provider is received by a quote server. In response to a quote request from a user to a contact server, the contact server requests the quote request from the quote server. The quote server then sends a respective quote according to the quote request to the contact server. In turn, the contact server disseminates the quote to the user. By having to send the requested quote information only once, the quote server is able to spend more time in receiving quote information and less time in distributing the quote information. A contact server enables the system to serve 1,000 - 2,000 people per combination of the quote and contact server.

[0015] ~~The above as well as additional objectives~~ All objects, features, and advantages of the present invention will become apparent in the following detailed written description.

[0016] ~~The novel features believed characteristic of the invention are set forth in the appended claims.~~ The invention itself ~~however~~, as well as a preferred mode of use, further objects, and advantages thereof, will best be understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:

[0017] Figure ~~1A~~ 1 ~~depicts is~~ a block diagram of a stock quoting system ~~utilizing the contact server in accordance with a preferred embodiment of the present invention~~ according to the prior art;

[0018] Figure ~~1B~~ 2 is a block diagram of a stock quoting system ~~commonly used in accordance with a preferred embodiment of the present invention; and~~

[0019] Figure ~~2A-3~~ is a flow chart of a stock quoting system ~~utilizing the contact server in accordance with a preferred embodiment of the present invention.~~ according to the prior art;

[0020] Figure ~~2B 4~~ is a flow chart of a stock quoting system ~~commonly used method for delivering stock quotes in real-time utilizing the stock quoting system in Figure 2, in accordance with a preferred embodiment of the present invention.~~

[0021] ~~With reference~~ Referring now to the figures drawings and in particular ~~with reference to Figure 1, there is shown~~ a block diagram of a stock quoting system ~~utilizing the contact server in accordance with a preferred embodiment of the present invention according to the prior art.~~ As shown, a stock quoting system 10 includes a quote server 13 and a database 14. Generally, stock quotes are sent from a source of stock quote 11 to a field vendor 12 and then to quote server 13. Source of stock quote 11 can be any exchange that generates stock quotes are typically stock exchanges, such as the New York Stock Exchange, NASDAQ, etc. Source 11 send the stock quotes to field vendor 12. Vendor 12 parsers the data and multiplexes it to quote server application 106 at a rate of about 1,000-2,000 packets or stock quotes per second. Quote server 106 is located in a regional brokerage office such as TradeCast or Merrill Lynch. Quote server 106 can be any type of server capable of receiving and transmitting information. As shown in step 204, quote server 106 checks to see if the data is a valid stock quote. Quote server 106 contains database 108. Database 108 keeps track of the history of each specific stock quote. If a quote for a particular stock is not in database 108, quote server 106 must add it. If the stock quote is already in database 108, quote server 106 must update database 108. Then, as shown in step 208, quote server 106 checks to see if contact server 110 is requesting the particular stock quote. If so, then quote server 106 sends the stock quote to contact server 110. As shown in step 212, contact server 110 sends the quote to all trader 112s who have requested that particular stock quote. If no trader 112 has requested a particular stock quote, then contact server 110 does not request that particular quote from quote server 106. Field vendor 12 are trading vendors such as Bloomberg or Comstock. Stock traders can request stock quotes from quote server via trading stations 15a-15n. In response to a stock quote request, quote server 13 would send a stock quote to a corresponding one or more of trading stations 15a-15n. Because stock quoting system 10 is a closed system, quote server 13 has to finish sending stock quotes to trading stations 15a-15n before quote server 13 can perform other important functions such as reading data from field vendor 12. In other words, if quote server 13 spends more time delivering stock quotes, then quote server 13 has to spend less time obtaining stock quotes. As a result, quote server 13 may miss a stock quote (or data packet) from field vendor 12. Because quote server 13 does not have

the most current stock quote, database 14 could not be updated, and a trader would not have the most current stock quote information needed to make intelligent trading decisions.

[022] This is a vast improvement over the old system shown in FIG. 1B. In the old system, when hundreds of trader 112s would request a stock quote, quote server 106 would have to send each trader 112 the stock quote, shown in steps 208 and 214. Because the system was a closed system, quote server 106 would have to finish sending each trader 112 a stock quote before it could move on to step 202 and read the data from field vendor 104. The system would spend more time delivering stock quotes, and less time obtaining stock quotes. Often quote server 106 would be delayed and therefore miss a stock quote or data packet from field vendor 104. Because quote server 106 did not have the most current stock quote, the database could not be updated and trader 112 would not have the reliable data needed to make split second decisions. With reference now to Figure 2, there is shown a block diagram of a stock quoting system in accordance with a preferred embodiment of the present invention. As shown, a stock quoting system 20 includes a quote server 23, a database 24 and a contact server 26. Stock quotes are sent from a source of stock quote 21 to a field vendor 22 and then to quote server 23. Source of stock quote 21 can be any exchange that generates stock quotes similar to source of stock quote 11 depicted in Figure 1. Field vendor 22 parsers the information and multiplexes it to quote server 23 at a rate of approximately 1,000 - 2,000 stock quotes (or packets) per second. Quote server 23 can be any type of server capable of receiving and transmitting information, and is located in a regional brokerage office such as TradeCast or Merrill Lynch. Quote server 23 is coupled to database 24 that keeps track of the history of each specific stock quote. If a quote for a particular stock is not in database 24, quote server 23 will add the missing stock quote to database 24. If the stock quote is already in database 24, quote server 23 will update database 24 with the latest information. Stock traders can request stock quotes from contact server 26 via trading stations 25a-25n. Contact server 26 may be, for example, a workstation, a mid-range computer or a mainframe computer. In addition, contact server 26 may be coupled to a network such as a local-area network (LAN) or a wide-area network (WAN). In response to a stock quote request, contact server 26 would send a stock quote to a corresponding one or more of trading stations 25a-25n.

Referring now to Figure 4, there is illustrated a flow chart of a method for delivering stock quotes in real-time utilizing stock quoting system 20, in accordance with a preferred embodiment of the present invention. After data has been received by a quote server, as shown in block 31, a determination is made by the quote server as to whether or not the received data is a valid packet, as depicted in block 32. If the received data is a valid packet, the received data

will be stored in a database coupled to the quote server, as shown in block 33. Otherwise, the received data will be discarded or ignored. Then, the quote server checks to see if a contact server is requesting a particular stock quote, as shown in block 34. If the contact server is requesting a stock quote, the quote server sends the stock quote to the contact server, as depicted in block 36. The contact server may send the stock quote to all traders who have requested that particular stock quote. If no trader has made a stock quote request, then the contact server does not request any stock quote from the quote server. By comparison, Figure 3 illustrates a flowchart according to the prior art where hundreds of traders would request a stock quote whereby quote server 13 would have to send each trader the stock quote, shown in steps 34 and 35.

[0023] Those skilled in the art will appreciate that the present invention is capable of being implemented in a variety of forms. While the invention has been particularly shown and described with reference to a preferred embodiment, it will be understood by those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and scope of the invention. As has been described, the present invention provides an improved method for delivering stock quotes in real-time. Because the quote server sends a stock quote to the contact server only when a stock quote request has been made from a trader via the contact server, the quote server is not burdened with the responsibility of delivering stock quotes for each stock quote request. As such, the quote server can dedicate more processing for receiving new stock quote information from a field vendor.

It is also important to note that although the present invention has been described in the context of a fully functional computer system, those skilled in the art will appreciate that the mechanisms of the present invention are capable of being distributed as a program product in a variety of forms, and that the present invention applies equally regardless of the particular type of signal bearing media utilized to actually carry out the distribution. Examples of signal bearing media include, without limitation, recordable type media such as floppy disks or CD ROMs and transmission type media such as analog or digital communications links.

While the invention has been particularly shown and described with reference to a preferred embodiment, it will be understood by those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and scope of the invention.

Marked-Up Version of Amended Claims (as of 11/22/02)

IN THE CLAIMS:

1. (Currently Amended) A method for disseminating real time information comprising the steps of:

receiving the information from a provider of the information by a quote server;

determining if the information is being requested by a user;

sending the requested information to a contact server; and

distributing the information to the user from the contact server.

2. (Previously Amended) The method of Claim 1, wherein said provider is a field vender.

3. (Previously Amended) The method of claim 1 wherein the information is stock quotes.

4. (Previously Amended) A stock quoting system comprising:

a quote server for receiving the information from a provider;

a contact server for requesting a stock quote request from said quote server, in response to said stock quote request being requested by a user;

means for sending a respective stock quote according to said stock quote request to said contact server by said quote server; and

means for disseminating said stock quote to said user by said contact server.

5. (Previously Amended) The stock quoting system of Claim 4, wherein said provider is a field vender.

6. (Previously Amended) The stock quoting system of Claim 4, wherein said contact server is a workstation.

7. (Currently Added) The method as defined in Claim 3, wherein:

the step of determining if the information is being requested by a user is accomplished by the quote server determining if the contact server is requesting a particular stock quote; and

the step of sending the requested information to the contact server is accomplished by the quote server sending the requested information to the contact server.

8. (Currently Added) The method as defined in Claim 7, wherein the contact server is a workstation.

9. (Currently Added) The method as defined in Claim 7, wherein a database is associated with the quote server, and the method further comprises tracking the history of each particular stock quote using the database.

10. (Currently Added) The method as defined in Claim 9, further comprising:

receiving the particular stock quote;
determining if the particular stock quote is in the database;
adding the particular stock quote to the database if the particular stock quote is not in the database; and
updating the database if the particular stock quote is already in the database.

11. (Currently Added) The system as defined in Claim 5, wherein the information is stock quotes.

12. (Added) The system as defined in Claim 11, further comprising a database associated with the quote server and positioned to track the history of each particular stock quote, and wherein the quote server further determines if the particular stock quote is in the database, adds the particular stock quote to the database if the particular stock quote is not in the database, and updates the database if the particular stock quote is already in the database.

13. (Added) A system for disseminating real time information comprising:

a quote server positioned to receive stock quote information from a provider;
a contact server, positioned to request a stock quote from the quote server, responsive to the stock quote request being requested by a user;
means associated with the quote server and responsive to the stock quote request for sending a stock quote to the contact server; and
means associated with the contact server for disseminating the stock quote received from the quote server to at least one user.

14. (Added) The system as defined in Claim 13, wherein the provider is a field vender.

15. (Added) The system as defined in Claim 13, wherein the contact server is a workstation.

16. (Added) The system as defined in Claim 13, further comprising a database associated with the quote server and positioned to track the history of each particular stock quote, and wherein the quote server further determines if the particular stock quote is in the database, adds the particular stock quote to the database if the particular stock quote is not in the database, and updates the database if the particular stock quote is already in the database.